

REMARKS

The Abstract of the Disclosure has been rewritten in American form.

The claims previously in the case have been replaced by a set of new claims, that are believed to be proper as to form and clearly patentable over the cited references.

Reconsideration is accordingly respectfully requested, for the rejection of the claims as anticipated by or unpatentable over BARROW (WO 01/55051), alone or in view of BALKUM (2002/0050233), or further in view of FONG.

Barrow (WO01/55051) fails to disclose the essential features of the claimed process. Apart from generic indications ("mixed granulated plastics materials are formed into a core by passing the mixture into a pressure chamber", "preferably the pressure chamber is heated", page 7 lines 14-16), there is no mention of the precise conditions under which the process needs to be carried out to prepare a PET granule according to the claimed invention. Such conditions are crucial to confer the desired mechanical and thermal characteristics to a concrete or material for the building industry incorporating PET aggregates, as discussed hereafter.

By reducing PET material into flakes and subjecting the latter to a thermal and mechanical process as claimed in claim 14, hollow spheroid-shaped granules are produced, which confer resistance and lightness to the concrete material. Specifically,

the PET flakes exposed to a temperature between 250 and 260°C (claim 14, step (b)) assume double-curvature vault shape; the subsequent vibratory and rotational mechanical movement and the compression to which the flake aggregates are subjected cause their welding with the formation of hollow spheroid-shaped granules, which are able to withstand heavy loads and secure structural lightness. It is important that the flakes are heated at temperatures of 250-260°C, i.e. below the melting point (see page 2, line 16), for a time sufficient for flakes to curl and soften under constant vibration and rotation. The subsequent compression step increases the mechanical resistance of the granules, while the surface heating (claim 16) softens their outer surface making them penetrable by the sand which stably adheres to the surface, until the thermal effect terminates and the granule surfaces start cooling. The concrete prepared using the PET granules according to the invention is characterized by high resistance and low weight-to-volume ratio and possesses thermal and acoustic insulation properties (page 3, lines 6-16). In laboratory tests, the sanded lightweight PET granules obtained by the claimed process show the following characteristics:

- diameter 13-20 mm;
- heap weight 520 kg/m³;
- grain weight 1316 kg/m³;
- water adsorption: negligible;
- no floating when concrete is in a plastic or fluid state

prior to curing;

for non-structural concrete with light artificial aggregate in non sanded PET:

- volume mass 1400-1500 kg/m³;

for structural concrete with light artificial aggregate in sanded PET:

- ratio water/cement 0.6;
- volume mass 1700-1800 kg/m³;
- compression resistance (28 dd) 27 MPa

The references cited by the Examiner fail to disclose the specific process conditions which enable the preparation of PET granules with such particularly favorable characteristics of lightness and mechanical resistance as above indicated. Departing from these conditions would render PET granules less suited for the sought applications, especially the preparation of lightened concrete or material for building industry such as structural and non-structural concrete, self-compacting concrete and thermally and acoustically insulated filling material.

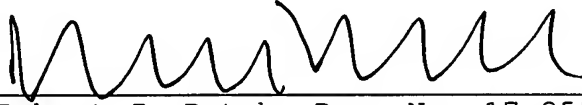
As the claims now in the case bring out these distinctions with ample particularity, it is believed that they are all patentable, and reconsideration and allowance are respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any

overpayment to Deposit Account No. 25-0120 for any additional
fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON

A handwritten signature in black ink, appearing to read 'Robert J. Patch', written over a horizontal line.

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